IMPACT OF AGRICULTURAL LITERACY EFFORTS ON ELEMENTARY STUDENTS' KNOWLEDGE OF PRODUCTION AGRICULTURE

Honors Thesis

Presented in Partial Fulfillment of the Requirements for the Undergraduate Honors Project in the College of Food, Agricultural and Environmental Sciences at
The Ohio State University

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ABSTRACT

As the agriculture industry continues to become more efficient and fewer individuals are directly involved in production, an increased number of people are misunderstood in food and fiber production systems. Educating the public about modern agricultural practices is important to the future of the industry. Agricultural literacy efforts in young children are especially effective. The goal of this study was to determine knowledge gained among elementary students regarding of Ohio's agricultural industry after participating in a one day agricultural literacy event: Farm Day. The objectives of the study were to describe the production agriculture knowledge of Farm Day participants prior to and after Farm Day; to describe the relationship between Farm Day participants' production agriculture knowledge prior to and after Farm Day by class, school and as an entire population of participating first grade students; and to describe the relationship between demographic characteristics including gender and background (farm or non-farm) of Farm Day participants' production agriculture knowledge prior to and after Farm Day. Education efforts were divided into eleven sessions on a variety of topics such as wildlife, agricultural products, and the pork industry. Identical pre- and post-tests containing one or two questions from each session were used to gather data. Pre- and post-test scores were compared to determine production agriculture knowledge gained. It was concluded that students' scores increased after participation in the agricultural literacy event. Interpretation of correlations found no strong correlations between gain scores and gender and/or students' backgrounds. Results of the study indicate that agricultural literacy efforts directed toward elementary students have a positive effect on students' understanding of production agriculture. Therefore efforts to educate the public about agriculture are effective, and it is recommended that such efforts be continued.

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CHAPTER 1

INTRODUCTION

Farm Day is an agricultural literacy event organized by the Versailles FFA Chapter. On Farm Day, over 1000 early elementary students from Darke, Miami, and Shelby counties in Ohio visit the farm of a Versailles FFA member to learn about agriculture. Students range from kindergarten to third grade and come from both farm and non-farm backgrounds. During Farm Day, students spend about three hours in several 15-minute sessions taught by Versailles FFA members learning about the agricultural industry in Ohio.

Because lack of time to implement agricultural information and difficulty accessing necessary supplies and materials are the greatest barriers to implementing agricultural lessons into their teaching (Balschweid), educators often find it hard to tie these principles into their classrooms. It is often necessary for teachers to use other interventions, such as Farm Day, to expose their students to agricultural concepts. Although students are aware that food products come from animals, they are not as aware of other products that animals produce for human use. Students did not understand the size and scope of modern agriculture (Meischen). For this reason, lessons during Farm Day range from dairy science to farm safety to the various uses for soybeans. The goal of the program is to increase the students' knowledge and awareness of the agriculture industry as a whole. The Versailles FFA Chapter has conducted the Farm Day program for over 25 years. During this time there have been numerous positive teacher evaluations, but there has never been a study done to determine what students are gaining from the experience.

STATEMENT OF THE PROBLEM

As the Farm Day program has grown and matured, changes have been made every year to improve the curriculum as well as the students' experiences. Session topics and content are evolving to fit the needs of the Versailles FFA Chapter as well as those of participating schools. This new curricula integrates new uses for conventional agricultural products with the traditional aspects of agriculture. Ironically, there has not been an evaluation of the program on the student level to determine the effectiveness of Farm Day.

PURPOSE OF THE STUDY

The ultimate goal of this study is to determine if elementary students gain a better understanding of Ohio's agricultural industry after participating in Farm Day. My hypothesis is that by participating in Farm Day, students do in fact gain a broader knowledge of agriculture in Ohio.

OBJECTIVES OF THE STUDY

The objectives of the study were to:

1. Describe the production agriculture knowledge of Farm Day participants prior to Farm Day.
2. Describe the production agriculture knowledge of Farm Day participants following Farm Day.
3. Describe the relationship between farm day participants' production agriculture knowledge prior to and after farm day by class, school, and as the entire group of 1st grade students.

4. Describe the relationship between gender and background (farm or nonfarm) demographic characteristics of Farm Day participants' production agriculture knowledge prior to and after farm day.

SIGNIFICANCE OF THE STUDY

Most importantly, this effectiveness study of Farm Day will determine whether the objectives of the program are being met. The Versailles FFA Chapter members and advisor put much time and effort into making the Farm Day program as useful and meaningful as possible to students, chaperones, and teachers. To ensure these efforts are most efficiently spent they must know that their objectives are being met.

In addition to those planning Farm Day benefiting from an evaluation, contributors would see their donations well spent. Numerous businesses and organizations contribute to Farm Day so that elementary students can gain a better understanding of agriculture in Ohio. If a more current study were done to evaluate the effectiveness of Farm Day in reaching its objectives, sponsors will find it more advantageous to support the program on a larger scale and businesses and organizations that have not played a role in the past will be more inclined to do so.

Aside from planning and financial advantages to conducting this research, participants' views of agriculture must be considered. Agriculture is perceived by the public in a negative light at times because presentation is negative or condescending in tone." (NRC) It is important that society receives background knowledge and valid facts concerning agricultural products and practices. "If students understand that many of the products they use everyday rely on by-

products from animals, then they may better understand the impact of agriculture on their lives." (Meischen) Not only are the sessions during Farm Day impacting students, but chaperones and teachers as well. Farm Day can truly influence people and their views of agriculture. By conducting this study, we can be sure that our lessons are meeting our objectives in teaching.

CHAPTER 2

THEORETICAL FRAMEWORK

Efficient agriculture requires fewer Americans to be directly involved in production of food and fiber. (Birkenholz, 1994) The public is unaware of sources of methods of food and fiber production. (National Research Council, 1988) This lack of knowledge stems from lack of agricultural education integration into educational systems during post secondary, secondary, primary, and pre-kindergarten formal education. (National Research Council, 1988) Lack of public awareness leads to tainted public impressions and more societal concern about inappropriate methods of food and fiber production. (National Agriculture Research and Extension Users Advisory Board, 1991; Lichte & Birkenholz, 1993) Society uses these impressions when electing and influencing lawmakers. (Hamlin, 1962)

In the National Research Council's report Understanding Agriculture: New Directions for Education (1988), an agriculturally literate person should "understand the food and fiber system, which would include its history, and its current economic, social, and environmental significance to all Americans." This definition for agricultural literacy was used throughout the study.

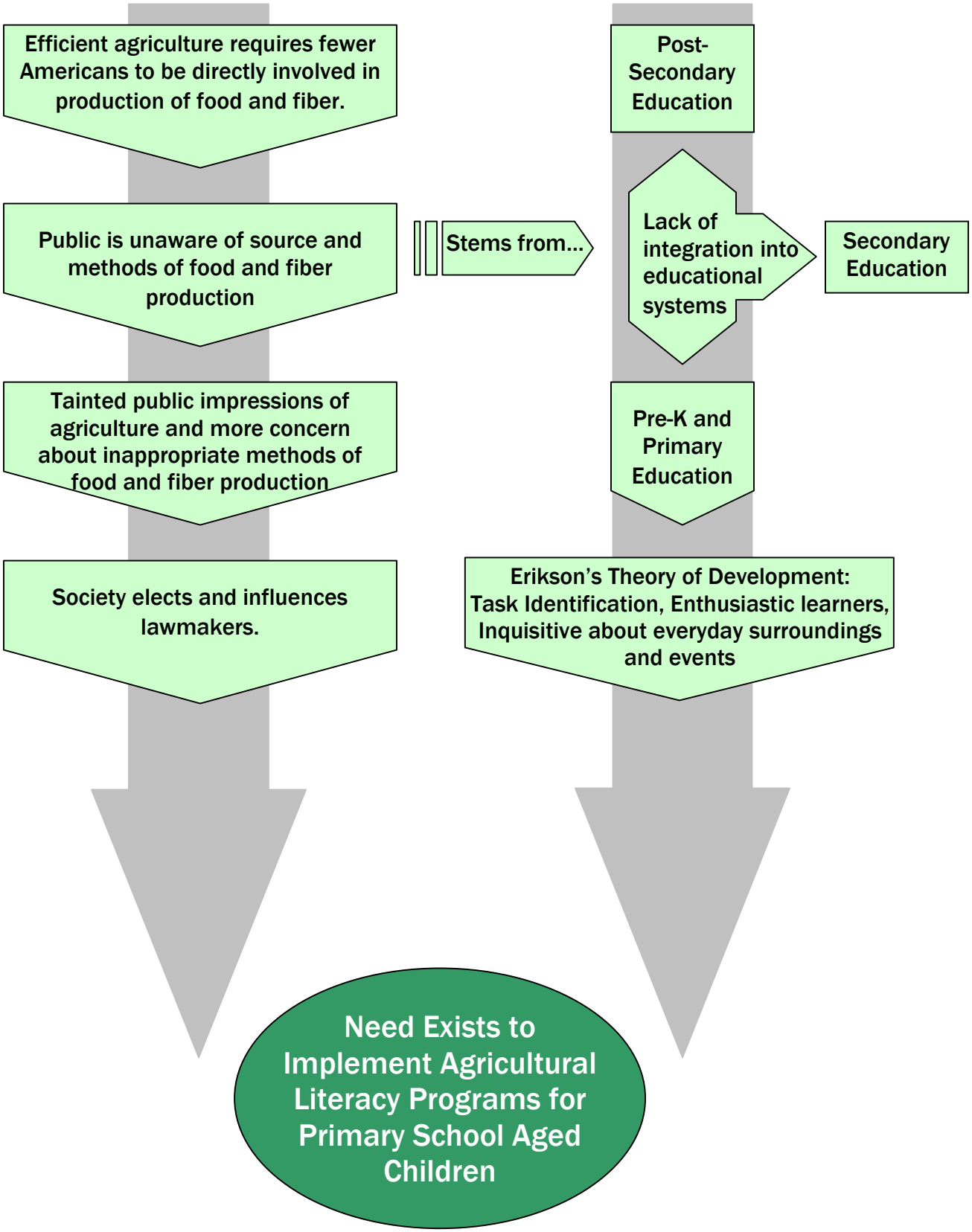
Agricultural literacy efforts should be focused on primary school aged children because according to Eric Erikson's theory of development children this age experience task identification, are enthusiastic learners, and are inquisitive about their everyday surroundings and events. In his Theory of Psychosocial Development, Eric Erikson outlines 8 consecutive stages of development. An individual is able to graduate to the subsequent stage after successful

completion of earlier stages. Stage four addresses school aged children (6-10 years old) and is characterized by task identification. With their central task being education, children in this stage of development are noted to be enthusiastic and inquisitive about their surroundings and everyday events. (Erikson, 1968) Children at this age of exposed to many different "surroundings." For children living in a rural environment, surroundings may include many stages of agriculture whether he/she lives on a farm or not. Urban children's surroundings likely do not include a strong agriculture focus.This results in an existing need to implement agricultural literacy efforts for primary school aged children.

Agricultural literacy efforts have traditionally been focused in the urban and suburban setting. However, a study shows that primary school students "lacked understanding of agricultural concepts even though they were raised in rural areas." (Meishen, 2003) Rural students did not have an accurate schema for the large scale of modern production agricultural operations and should be allowed to experience the structure of agriculture today first-hand. (Meishen, 2003) This fact augments the notion that there is a need for youth agricultural awareness programs and the rural way of life.

Greatest barriers to implementing agricultural into existing lessons were the time necessary for curricula changes and access to necessary supplies and materials and information. (Balschweid, 1998) "Elementary teachers agree that agriculture could be taught in science units, and had positive perceptions about the agricultural industry, the integration of agriculture into the curriculum, and the need for agricultural awareness." In addition elementary teachers supported the notion that agriculture should be integrated into elementary classes. (Balschweid, 1998)

CONCEPTUAL FRAMEWORK



METHODS

POPULATION AND SUBJECT SELECTION

The evaluation includes the entire population of 1st grade student participants in Farm Day. Students from several elementary schools throughout Darke, Shelby, and Miami counties in western Ohio attended the event. First graders were selected to be evaluated because they comprise the majority of total participants. About half of participants are rural backgrounds, with the remainder coming from urban areas with no informal, hands-on interaction with agriculture.

DATA COLLECTION PROCEDURES

Pretests were distributed to participating classes two weeks prior to Farm Day to obtain a base knowledge level for each class. A letter of thanks and instruction to teachers accompanied the pre-tests (see Appendix 1). The pretest consisted of 10-20 objective, multiple choice questions corresponding to the lessons that students were taught during Farm Day (see Appendix 2). One or two questions were from each of the 13 15-minute sessions to comprise the pretest. Questions were derived from station objectives provided by the Versailles FFA Chapter (see Appendix 3) and have simplified language and pictures to conserve time and account for students' varied levels of reading ability. One question, number 10, was thrown out because it was not adequately answered during the "Petting Zoo" presentation to students. All other stations presented during Farm Day were covered on the pretest and all students were given identical tests.

Following the last session of Farm Day, each participating class was provided with a package containing posttests and instructions for teachers (see Appendix 4) on how to properly administer the tests. Each package was postage paid with the expectation that participating teachers would distribute the posttests and return them by mail. Posttest questions aimed to test the knowledge resulting from the agricultural literacy program. Questions on the post test are identical to those on the pretest, and again tested students on every station that was visited. The Ohio State University College of Food, Agricultural and Environmental Sciences pencils were given to participating teachers to distribute to their students at a later date as a token of appreciation and incentive to complete the posttest.

DATA ANALYSIS

Included on both the pretest and posttest was a question concerning sex and farm background. After analyses of this information, relationships can be drawn between demographics and knowledge gained. These relationships can be used to evaluate sessions and determine which are most valuable to Farm Day. Assessments will not be on a graded scale, but measured quantitatively as knowledge acquired. Each class's mean pretest and posttest scores will be compared to determine if knowledge was gained. There will be no comparison made between individuals, classes or schools.

TIMELINE

This project commence in early March, 20066 during the beginning of the Farm Day planning stages. Pretests and posttests were developed from the Farm Day curriculum and station objectives during March and early April. In late April, pretests were mailed to participating schools. Incentive gifts were purchased in early May. Farm Day will take place on May 12th from 8 a.m. to 2:30 p.m. Posttest packages were distributed at the end of Farm Day with the

expectation that teachers would administer and return them by June 1st, 2006. Analyses of data collected will take place during the summer months. A final report and presentation will be prepared by Spring, 2007.

CHAPTER 4

FINDINGS

Table 1
Participants Knowledge of Production Agriculture Prior to and After an Agricultural Literacy Event by School, Class, and Population

Group of Students	Prior to Farm Day[1]	Post Farm Day[1]	Gain Score[2]	Standard Deviation
Versailles Elementary	**.7919**	**.8710**	**.0804**	**.16525**
Class # 1	.7619	.8661	.1042	.17870
Class # 2	.8482	.8343	-.0155	.12364
Class # 3	.7393	.8605	.1214	.20741
Class # 4	.8185	.9229	.1190	.09932
North Star Elementary	**.7360**	**.7484**	**.0143**	**.22301**
Class # 5	.7360	.7484	.0143	.22301
Whittier Elementary	**.7167**	**.7648**	**.0304**	**.19470**
Class # 6	.7449	.7789	.0340	.20655
Class # 7	.7078	.7331	.0263	.18628
Class # 8	.6973	.7825	.0893	.14816
Spring Creek Elementary	**.7646**	**.8524**	**.0835**	**.14792**
Class # 9	.7857	.8292	.0311	.18379
Class # 10	.6851	.8429	.1504	.11141
Class # 11	.8231	.8851	.0748	.11401
Total Population	**.7589**	**.8092**	**.0671**	**.17119**

Notes: [1] Score given as mean. [2] Score given as Post Test mean minus Pre Test mean.

First grade students' mean pretest score was .7589. This is the equivalent of answering 10.6 questions correctly out of 14 total graded questions. Two schools scored above the mean pretest score: Versailles (0.7919) and Spring Creek (.7646). Versailles is a rural school and Spring Creek is located in an urban area. The other schools, North Star (.7360) and Whittier (.7167), scored below the average pretest score. North Star is a rural school and Whittier is in an urban setting.

The mean posttest score for first grade participants in Farm Day was 0.8092. This is the equivalent of answering 11.3 questions correctly out of 14 graded questions. Two schools scored above the mean, Versailles (.8710) and Spring Creek (.8524). Again, Versailles is rural and Spring is urban. These were the same two schools that scored above the mean on the pretest. The remaining schools, North Star (.7484) and Whittier (.7648), scored below the mean.

Gain scores were determined by subtracting mean pretest scores from mean posttest scores. First graders had an average gain score of .0671. Two schools scored above the average, Versailles (.0804) and Spring Creek (.0835). These are the same schools that scored above the average mean on pretests and posttests. The remaining schools scored below the mean, North Star (.0143) and Whittier (.0304).

Table 2
Correlation of Pre- and Post- Test Scores in Relation to Gender and Housing

	Pretest Score (%)	Posttest Score (%)	Gender (Male=0, Female=1)	Housing (Nonfarm=0, Farm=1)	Gain Score (Post % / Pre %)
Pretest Score (%)	--	.071	.070	.119	-.733
Posttest Score (%)	--	--	-.123	.039	.626
Gender (Male=0, Female=1)	--	--	--	.056	-.146
Housing (Nonfarm=0, Farm=1)	--	--	--	--	-.080
Gain Score (Post % / Pre %)	--	--	--	--	--

Correlations between pretest, posttest, gain score, gender, and housing showed no significant results. A low correlation of -.123 between gender and posttest score showed females scored slightly higher on posttests than males. A low correlation (.119) also exists between housing and

pretest scores. Students from farm backgrounds scored just slightly higher that those with nonfarm backgrounds. There was a low negative correlation (-.146) between gain score and gender. This results from females scoring slightly higher than males on posttests.

CHAPTER 5

CONCLUSIONS

Student gain scores increased overall throughout classes and schools, however no significant conclusions could be drawn between gender, housing, and gain scores. Efforts to educate the primary school aged children about production agriculture are effective, and it is recommended that such efforts be continued. Below are specific findings relating to each of the study objectives:

1. Describe the production agriculture knowledge of Farm Day participants prior to Farm Day.

   The mean production agriculture knowledge before farm day was 0.7589. This is the equivalent of students answering 10.6 questions correctly out of 14.

2. Describe the production agriculture knowledge of Farm Day participants following Farm Day.

   The mean production agriculture knowledge after farm day was 0.8092. This is the equivalent of students answering 11.3 questions correctly out of 14.

3. Describe the relationship between farm day participants' production agriculture knowledge prior to and after farm day by class, school, and as the entire group of first grade students.

   On average, students gained .0671 between pretesting and posttesting. This is the equivalent of correctly answering 0.94 additional questions correctly following the Farm Day experience.

4. Describe the relationship between demographic characteristics including gender and background (farm or non farm) of Farm Day participants' production agriculture knowledge prior to and after farm day.

   There were no strong correlations between test scores, gain scores, gender or background.

CHAPTER 6

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APPENDIX 1: Pre-Test Letter to Teachers

College of Food, Agricultural, and Environmental Sciences

Agricultural Administration
2120 Fyffe Road
Columbus, OH 43210-1066

May 1, 2006

Farm Day Participants:

Thank you for participating in Versailles FFA Farm Day, 2006! Another great experience is expected again this year!

Each year it is necessary to make modifications to the Farm Day program in order to meet the needs of student and teacher participants and the Versailles FFA. Although many aspects of the program are unchanged, the evaluation of Farm Day is being improved. This year's plan for evaluation includes first grade student participants. Teachers of participating first grade classes are asked to administer a pre-test before farm day and an identical post-test following the event.

As a junior honors student in Agricultural Education at The Ohio State University, I am spearheading the evaluation of Farm Day, 2006 as my honors research project. I am interested to what extent Farm Day helps students learn about agriculture.

Enclosed you will find a pre-test for each of your first grade students. This pretest is concise and should not take a great deal of time. In order to ensure the validity of my research, pretests should be administered by all teachers on the same day. If possible, I would appreciate if students were given the pretests on Wednesday, May 10th or as close to that date as possible. Because I was unsure of the reading level of each of the students, I attempted to write the tests with simple language and images. It is possible that you may have to read some of the students the test. Please do not give clues or suggestions as to the answers to any of the questions, or send the tests home with students to complete with the help of parents. This will assure that students are on a somewhat level playing field.

Students should not put their names on their tests, as they will not be evaluated on an individual basis.
After analyses of the tests, relationships will be drawn between demographics and knowledge gained. These relationships can be used to evaluate sessions and determine which are most valuable to Farm Day. Assessments will not be on a graded scale, but measured quantitatively as knowledge acquired. Each class's mean pretest and posttest scores will be compared to determine if knowledge was gained. There will be no comparison made between individual students.

Each teacher should bring his/her pretest packages along to Farm Day on May 12th. I will collect pre-test and distribute post-test packages on the day of the event. Enclosed in the post-test packages will be post-tests identical to the pre-test, a small token of appreciation for the students, and a large postage-paid envelope. It is essential that post-tests be administered as soon after farm day as possible, preferably on Monday, May 15th. Post-tests should be mailed to the address on the postage-paid envelope by May 25th.

If you have any questions or would like a copy of the research proposal, feel free to contact me by phone (937-489-9552) or email (luthman.10@osu.edu). I will also be present at Farm Day for any concerns that you may have. I am grateful to you for your cooperation, and I look forward to seeing you at Farm Day 2006!

Sincerely,

Sarah Luthman

Student Participants
Farm Day, 2006

	#	1st Graders
Versailles		
Billenstein (1st)	25	25
White	25	25
Luthman	25	25
Phlipot	25	25
Schulze (2nd)	17	
Coblentz	18	
K. Bergman	17	
E. Bergman	18	
Homan (kt)	7	
Mortenson (kam)	37	
Durham (kam)		
North Star		
Billenstein (K)	12	
Dysert (1st)	23	23
Alberts (2nd)	20	
Spring Creek		
Cline (1st)	23	23
William (1st)	23	23
Turner (1st)	24	24
Nichols (1st)	23	23
Tri-Village		
Webber (K)	20	
lenhoff (K)	19	
Shives (K)	19	
YMCA		
YMCA 1	15	
YMCA 2	15	
Wittier		
Hecht-23	23	23
Barnes-24	24	24
Bohman-23	23	23
TOTAL:	**520**	**286**

APPENDIX 2: Farm Day Pre/Post Test

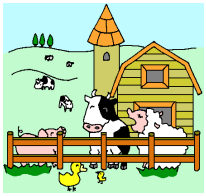
Please circle *all* of the correct answers.

1. I am a:

boy

girl

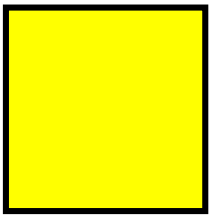
2. Do you live on a farm?



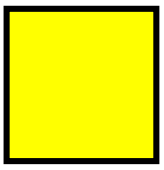
Yes

no

3. For us to have food to eat everyday, a farm field must be how big?



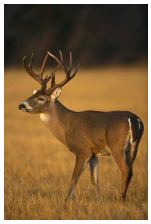
Large



medium

small

4. What animal lives near you?



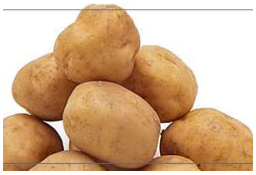
Deer

Giraffe

Polar Bear

5. What are French fries made of?

Corn



Potatoes

Pear

6. What do you use to make ice cream?

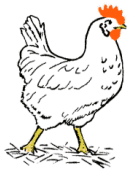
Milk

Soda


Butter

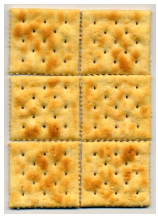
7. Where does milk come from?


Grocery

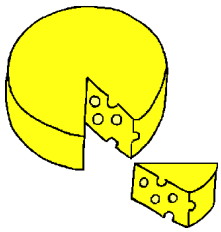

Chickens


Cows

8. What product is ***not*** made from milk?


Crackers


Butter


Cheese

9. Horses are used for which purposes?

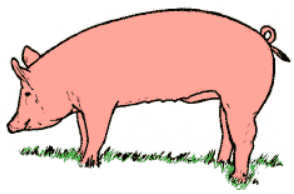

Horseback Riding


Horse Racing


Farming

10. Which animals live on a farm?


Horses Goats


Pigs

11. Where does flour come from?


Soybean


Wheat


Flowers

12. Where do plants get nutrients from?


Soil

Vitamins


Oranges

13. What are soybeans ***not*** used for?


Ink


Candle


Clothing

14. What do plants need to germinate?


Orange Juice


Water

Milk

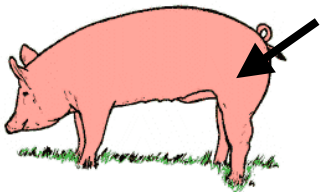
15. Which is made from pigs?


Drum Sticks

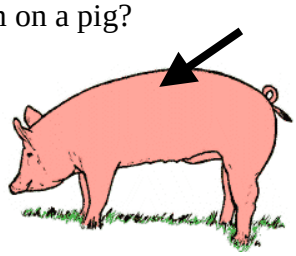
Footballs


Paper Clips

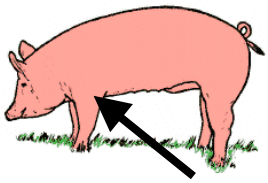
16. Where does ham come from on a pig?



Rear



Top



Front

17. What is corn used to make?

Animal Feed

Shoes

Basketball

APPENDIX 3: Farm Day Station Objectives

Farm Day Stations:

Hay Ride- The objective of the Versailles FFA is to allow the children the opportunity to visualize the amount of land that is needed to properly raise enough feed to supply the animal on a farm. It also allows them to visualize machinery in a real setting, which is working in a field.

Wildlife- The objective of the Versailles FFA for this station is to allow the children the opportunity to see the different types of wildlife that live in this location. This station also helps them understand what they should do around wildlife, and what type of equipment is needed to properly care for wildlife.

French Fries- The objective for this station is to give the students examples of how many people use potatoes in their everyday lives. We will give numerous examples of uses for potatoes. This station goal is to teach the students valuable information pertaining to the raising and harvesting potatoes and show the children all the possible uses of potatoes.

Ice Cream-In this station the objective is to show the participants what ingredients are needed to properly make ice cream. We will show the participants the different ways to make ice cream. We would like to show them the importance of farm products when it comes to one of the favorite foods for many Americans. At the end of this station we will allow the kids to experience first hand how to make ice cream. This allows them so see the importance of agriculture in many of the foods that they eat everyday.

Cow Milking-The cow milking station is where we allow the children the opportunity to participate in actual farm work. This stations objective is to show the participants the amount of work needed to milk a cow and the amount of work needed to do many farm chores. We also intend to tell them about the many products made from milk, and tell them the amount of feed and water needed to properly care for a cow. By allowing them to try to manually milk a dairy cow we are showing them on a first hand basis the amount of work needed. This will hopefully give them a new found interest and respect for agriculture.

Horse Riding-The objective of the horse ridding station is to give the children the opportunity to experience the enjoyable and relaxing side of agriculture. This station will show them that agriculture doesn't mean you work all the time. This also allows the participants the opportunity to experience interactions with animals on a first hand basis.

Petting Zoo- The petting zoo allows the participants the opportunity to once again have interactions with the animals. It also allows the participant to see the various types of animals that can be found on a farm. This puts agriculture in a relaxing setting and gives the participants the chance to play with the different types of animals. We will also

inform the kids how to properly handle the livestock so they are safe when they handle animals in the future. Hopefully this will change people's attitudes toward different types of animals on the farm.

Cookies and Milk- The objective of the cookies and milk station is show the kids all the agriculture related ingredients there are in cookies. When discussing a specific ingredient we will also go into where the ingredient comes from and how it is processed. We will go into great detail about the importance of soil when it comes to cookie production. We will show them how every ingredient in a cookie originates from the soil. We hope that the cookies and milk station will teach each of the kids the importance of agriculture when it comes to foods.

Soybean Station- The objective of the soybean station is to show the uses for soybeans throughout the world. We also plan to give examples of favorite foods that have a soybean ingredient in them. We will also give them a chance to grow there own soybean plant. By doing this activity we will teach the participants what it takes for the soybean plant to germinate. We will tell them the importance of water and sunlight in the growth of plants.

Pork Station- The objective of the pork station is to give examples of products that have pork related byproducts. We will find some of the more common unknown pork related items. Using these items we will inform the participants where different byproducts come from. After the byproducts we will go into the food related products. Then we will show where each cut of meat comes from on the pig. Hopefully they will see the importance of animals such as pigs in their lives.

Corn Station- The objective of this station is to teach the students how the field corn is turned into the common plastic products we see every day. We plan to show the students the amount of corn produced in the United States every year. We will then breakdown this number into the different categories such as livestock, exports, ethanol, corn syrup, and starches. Students will then learn about the importance of starches. After the starches we will move into the biodegradable subject. We will then conduct an experiment showing the students the different uses for biodegradable products. Through this station students will learn the importance of corn in their lives.

APPENDIX 4: Post- Test Letter to Teachers

College of Food, Agricultural, and Environmental Sciences

Agricultural Administration
2120 Fyffe Road
Columbus, OH 43210-1066

May 12, 2006

Farm Day Participants:

Thank you for participating in Versailles FFA Farm Day, 2006! I hope that the day was a success and that your students had an educational experience!

In this year's evaluation of Farm Day, teachers of participating first grade classes were asked to administer a pre-test before farm day (hopefully this was already accomplished) and an post-test following the event. Enclosed you will find a post-test for each of your first grade students, a postage-paid envelope, and an Ohio State University College of Food, Agriculture, and Environmental Sciences pencil for each of your students as thanks for participating in this project. You should find the post-tests identical to the pre-tests that were administered earlier in the week. Again, the posttest is concise and should not take a great deal of time. In order to ensure the validity of my research, posttests should be administered by all teachers on the same day. If possible, I would appreciate if students were given the posttests on Monday, May 15th or as close to that date as possible. Again, please do not give clues or suggestions as to the answers to any of the questions, or send the tests home with students to complete with the help of parents. This will assure that students are on a somewhat level playing field. Upon your class's completion of the Farm Day posttest, drop them in the postage-paid envelope and mail it to the address given by May 25th.

Students should not put their names on their tests, as they will not be evaluated on an individual basis. After analyses of the tests, relationships will be drawn between demographics and knowledge gained. These relationships can then be used to evaluate sessions and determine which are most valuable to Farm Day. Assessments will not be on a graded scale, but measured quantitatively as knowledge acquired. Each class's mean pretest and posttest scores will be compared to determine if knowledge was gained. There will be no comparison made between individual students.

If you have any questions or would like a copy of the research proposal or results, feel free to contact me by phone (937-489-9552) or email (luthman.10@osu.edu). I am grateful to you for your cooperation and hope that you plan to participate in Farm Day in future years!

Sincerely,

Sarah Luthman

APPENDIX 5: Project Budget

Category	Line Item	Estimated Cost
Supplies		
	Paper/Copies	$ 200.00
	Envelopes/Postage	$ 275.00
	Token of Appreciation	$ 200.00
Publications		
	Poster	$ 250.00
Dissemination		
	Travel	$750.00
Total Estimated Costs		**$1675.00**